

Neurologic Emergencies: Perspectives from Europe / Turkey




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Overview

- Turkey
 - Its health care system and approaches to neuro. emergencies in various settings
 - Unusual neurologic problems
 - Research & educ. in neuro. emergencies
- Europe: approaches, current research

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Disclaimer

- Approaches to neurological emergencies vary greatly among physicians in Europe and Turkey
- Findings based on:
 - personal experience (TR)
 - personal interviews (TR, F, D, E)
 - e-mail questionnaire (N, TR, GB, B, D)

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Turkey's Health Care System: the patients

- Health is often not taught in schools
- Few info sources for public
- Patients are 'passive', doctors speak with authority

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Turkey's Health Care System: the patients

- Health is often not taught in schools
- Few info sources for public
- Patients are 'passive', doctors speak with authority
- Patients are ill-informed about health problems

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Turkey's Health Care System: finances and insurance

- 25% 'everything paid for' insurance (pts. usually go to univ. hospitals)
- 30% 'govt. HMO' insurance, with own hospital and clinic system
- 20% self-employed insurance: govt. hospitals
- 25% no insurance: govt. hospitals

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Turkey's Health Care System: facilities


- 5900 public health clinics
- 1300 hospitals (950 govt.; 40 univ.)
 - Little access to journals and internet in government hospitals
- Private health sector increasing

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Turkey's Health Care System: facilities

- More MR machines in Istanbul (80!) than in the UK.
- Head CT \$40-50, head MR \$80-100




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Turkey's Health Care System: pre-hospital


- Pre-hospital care (large-med. cities)
 - '112' national ambulance system
 - 25% trauma, 20% cardiac, 10% neuro.
- Transport (blue) and ALS (red) ambul.



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Turkey's Health Care System: pre-hospital

- In large-med. cities, '112' national ambulance system
 - 25% trauma, 20% cardiac, 10% neuro.
- Still not widely available or used
 - Taxi or private car used to transport 60% of stroke patients

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Turkey's Health Care System: emergency department


- Initial care given by GPs in 99%
- Neurologists in ED (very large govt. hospitals)
- Little initial documentation, little or no documentation upon transfer



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Turkey's Health Care System: emergency department

- Initial care given by GPs in 99%
- Neurologists on staff (medium-large hospitals)
- Little initial documentation, little or no documentation upon transfer
- About 100 EM specialists nationwide, most at university medical centers

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Turkey's Health Care System: intensive care units

- In large university medical centers, but few beds
- 'Monitored units' in government hospitals

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Ischemic Stroke: demographics (TR)

- Present to health care provider (clinic or hospital *without* ICU) within 2 hours in 50%, and are then transferred to a tertiary-care hosp.
- About 30% arrive to a tertiary-care hospital within 2 hours

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Ischemic Stroke: demographics

- **Reasons for arriving late:**
(Dora B, et al, Akdeniz Univ. Dept. of Neurology)
 - 'Thought it would go away by itself'
 - Transportation problems
 - Live far away
 - 'Didn't realize it was an illness'

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Ischemic Stroke: University Medical Centers

- History and physical exam
- Lots of blood tests; head CT
- [IV heparin]; almost no IV tPA
- One center: intra-arterial tPA
- Aspirin if no intracranial hemorrhage
- [IV furosemide or ACE inhib. for high BP]

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Ischemic Stroke: University Medical Centers

- **Cont'd:**
- If cerebral edema worsens,
 - Mannitol and fluid restriction
- In one center: craniectomy for severe cerebral edema

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Ischemic Stroke: Large Govt. Hospitals

- H&P, blood tests and head CT
- Steroids as anti-edema therapy
- no tPA
- Heparin if a small infarct, ± clopidogrel
- [Piracetam]

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Ischemic Stroke: Rural Govt. Hospitals


- Nothing, then transfer patient, or
- Dexamethasone + mannitol + transfer
- [Furosemide ± mannitol if change in MS]
- [SL nifedipine for high BP]

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Ischemic Stroke: Folk Remedies in Turkey


- Cold water, applied to the head
- Blood pressure medicine
- Perfumed water - cologne

- Massage of affected limbs
- Lemon juice; garlic; yogurt drink

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Ischemic Stroke: Treatment in Europe

- Spain: tPA if <3 hrs; in large centers
- Norway: tPA if <3 hrs, etc
 - Neurology if pt <60 y/o, int. med. if >60
- Germany: patients cared for in ICU (anesth.);
 - tPA in large hospitals (as per NINDS)
 - heparin in small hospitals
 - Less aggressive in older patients

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Ischemic Stroke: experimental studies (Eu)

- DIAS: Desmoteplase in Acute Stroke
 - 'DEDAS' in the USA
 - Vampire bat saliva
 - 3-9 hours, if penumbra seen on MR
- ECASS III: tPA
 - 3-4 hour window

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Ischemic Stroke: experimental studies (Eu)

- IMAGES: MgSO₄
 - within 12 hrs; 5 gm load, 10 gm over 24 hrs
- ENOS: Efficacy of Nitric Oxide in Stroke
 - Within 48 hrs; daily transdermal glyceryl trinitrate patch (NO donor) x 7 days
- IST-3: International Stroke Trial-3: tPA
 - Within 6 hours; 0.9 mg/kg, 10% bolus...

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Ischemic Stroke: Who should give tPA? (E, ?)

- The internist in the ED?
- The neurologist on the stroke team?
 - Not enough neurologists for a stroke team in every hospital, 24/7

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Transient Ischemic Attack: University Medical Centers

- CT and admit for observation
- [CT & admit if >4 attacks in 2 weeks]
- ASA or ticlopidin or clopidogrel or ASA+dipyridamole
- [heparin if 'unstable TIAs']

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Transient Ischemic Attack: University Medical Centers


- After admission, imaging:
(MR, carotid doppler, echocard.,
transcranial doppler)
- Treat underlying disease
- Clopidogrel
- If high-grade stenosis,
endarterectomy

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Transient Ischemic Attack: Large Govt. Hospitals


- [High-risk: heparin]
- Low-risk: aspirin

- Discharge to follow up in clinic

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Transient Ischemic Attack: Rural Govt. Hospitals (TR)

- Aspirin + discharge to clinic

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Transient Ischemic Attack (Eu)

- Norway, Spain, UK:
 - 160 mg aspirin/day + inpt. or outpatient work-up
 - If crescendo pattern: heparin/LMWH then coumadin

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Undifferentiated Coma: University Medical Centers

- H & P
- Lots of tests + head CT

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Undifferentiated Coma: Rural Govt. Hospitals (TR)

- \pm fingerstick glucose
- [SL nifedipine if hypertensive]
- IV mannitol
- IV furosemide
- Transfer to a larger hospital (univ. or govt. - depending on insurance or lack thereof)

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Subarachnoid Hemorrhage: University Medical Centers

- Head CT, then MR angio, DSA
- Prophylactic nimodipine if more than mild
- Prophylactic diphenylhydantoin
- For high BP, IV nitroglycerine or nitroprusside
- Sedation; pain relief for headache

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Subarachnoid Hemorrhage: Large Govt. Hospitals

- Head CT (+ DSA if possible)
- IV nitroglycerine for high BP
- Dexamethasone, nimodipine, diphenylhydantoin
- Sedation

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Subarachnoid Hemorrhage: Rural Govt. Hospitals

- No CT scanner available
- LP is not done
- If patient looks well, might be discharged
- If patient worse, transferred after getting mannitol + furosemide + steroids

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Guillain-Barré Syndrome: University Medical Centers

- Attention to airway & breathing...
- If any question about the dx, LP and EMG
- Plasmapheresis then IV immunoglobulin

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Guillain-Barré Syndrome: Large Govt. Hospitals

- Attention to airway & breathing...
- Imaging if diagnosis is unclear
- Plasmapheresis then IV immunoglobulin
- If no insurance, plasmapheresis only
- \pm IV steroids

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Guillain-Barré Syndrome: Rural Govt. Hospitals

- Attention to airway & breathing...
- Supportive care only
(if no money for transfer,
immunglobulin or plasmapheresis)

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Other neurologic problems (TR)

- Behçet's disease
 - Recurrent inflammation
 - Aphthous oral ulcers, genital ulcers,
uveitis, erythema nodosum

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Other neurologic problems (TR)

- Behçet's disease
 - Recurrent inflammation
 - Aphthous oral ulcers, genital ulcers,
uveitis, erythema nodosum
 - CNS involvement in 30%
 - Recurrent meningoencephalitis, CN
palsies, transient brainstem dysfunction
 - Brisk onset, CSF pleiocytosis, nl glucose

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Other neurologic problems (TR)

- Wilson's disease ("progressive
hepatolenticular degeneration")
 - Autosomal recessive
 - Tremor of tongue, jaws...
 - Dysphagia + drooling
 - Rigid and slow moving limbs

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Other neurologic problems (TR)

- Complications of Brucella & TB
 - Meningitis
 - Vertebral osteomyelitis

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Piracetam (Nootropil®) in TR

- Used widely for "psycho-organic
syndromes" in Turkey
 - Memory loss
 - Vertigo
 - Learning difficulties
 - TIA
 - [epilepsy, TIA and strokes]

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Piracetam (Nootropil®) in TR

- Used widely for “psycho-organic syndromes”
 - Memory loss, Vertigo
 - Learning difficulties, TIA
 - [epilepsy, TIA and strokes]
- Non-blinded, non-randomized; some human, many animal studies; results mostly: “a trend towards...”

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Other medications (Eu):

- Clomethiazole - hypnotic used to attenuate alcohol withdrawal symps
- Olanzapine - atypical antipsychotic, rapid dissolving tablet

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Neurologic Emergencies: education (TR)

- Textbooks and handbooks:
 - Some written locally
 - Some translated from English
 - Emergency Medicine: companion handbook, 5th ed. (Ma & Stein)
 - Neurology for the House Officer
 - Merrit's Neurology

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Neurologic Emergencies: education (TR)

- Emerg. Med. Assoc. of Turkey
- Emerg. Med. Physician's Assoc.
- Neurology Assoc. of Turkey
 - Working group on neurological critical care and emergencies

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Neurologic Emergencies: national EM & neuro. societies +

- British Association of Stroke Physicians (www.basp.ac.uk)
- European Federation of Neurological Societies (www.efns.org)
- Europ. Stroke Initiative (www.eusi-stroke.com)
- European Stroke Council (eurostroke.org)
- www.europeanbraincouncil.com

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Neurologic Emergencies: research in Turkey

- Stroke research
 - Observational
- Headache
 - Metoclopramide vs. meperidine
- Epilepsy
 - observational

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Neurologic Emergencies: treatment guidelines

- None yet by national neurology or EM associations in Turkey
- Foreign guidelines followed in many univ. medical centers

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Summary (TR)

- In many settings, public not well informed about emerg. health care
- Strokes are treated aggressively in large centers only
- Access to current medical info is limited (esp. in rural settings)
- Unproven therapies are used more often in rural settings

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Summary (Eu)

- In large centers, stroke teams:
 - treat patients with tPA
- Enrolling patients in various trials
 - tPA: 3-4 hours (ECASS III)
 - Desmoteplase: 3-9 hrs
 - tPA: 0-6 hours (IST-3)
 - Mg: 12 hours
 - NO (NTG patch): 48 hours

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